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ABSTRACT

This document outlines a 2-day training workshop that introduces small groups of inservice elementary school teachers to the Apple II GS computer and the database option of the AppleWorks program. The teachers are provided with experience using the database in three separate curriculum areas: (1) science; (2) language arts; and (3) social studies. The workshop consists of two 1.5-hour classes and one 2-hour class. Teachers attend one day of the workshop in the autumn and the second day of the workshop in the spring of the same school year. During the interim between the two sessions, teachers complete a data gathering project. Participating teachers are expected to acquire the following skills: (1) accessing previously saved files; (2) setting up new files; (3) printing database files; (4) inserting data into database files and saving them; (5) moving information from database files into other database files and into word processing files; and (6) using common word processing functions. A complete workshop outline is included as well as activities for each of the three listed curriculum areas. (DB)

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INTEGRATING APPLEWORKS DB

SOCIAL STUDIES AND SCIENCE

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INTEGRATING APPLEWORKS DATABASE INTO ELEMENTARY SCHOOL LANGUAGE ARTS, SOCIAL STUDIES AND SCIENCE

A Workshop Conducted At Seoul American Elementary School
Yongsan Army Base, Seoul, Republic of Korea
During School Year 1990-1991

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PROGRAM DESCRIPTION

"Integrating AppleWorks Database Into Elementary School Language Arts, Social Studies and Science is a two day, over the shoulder training workshop which introduces participants to the Apple IIGS computer, the database option of the AppleWorks program (version 2.0, 2.1 or 3.0 of the AppleWorks program is used) and provides them with experience using the database in three separate curriculum areas: (1) science; (2) language arts, and; (3) social studies. Participants attend one day of the workshop in the fall, near the beginning of the school year and the second day the following spring, near the end of the same school year. During the interim between the two sessions, participants complete an in their classroom data gathering project. The data generated from their projects is then used by the participants during the second workshop day.

The workshop was developed for small groups (6 or less per group; 18 per workshop) of inservice elementary school teachers each of whom has the sole use of a computer during each of three class held on each workshop day. There are two one and one-half hour classes and one two hour class during the course. Each participant attends each class. The course accommodates varying levels of computer experience. In addition, individuals without experience using Apple IIGS computers are encouraged to attend. Emphasis is placed upon student success in a "hands-on" environment. Upon completion of the program, attendees should be able to:

1. ACCESS previously saved files.
2. SETUP new database files.
3. PRINT database files as tables and labels using various print options.
4. SAVE database files.
5. INSERT data in database files.
6. ARRANGE database files on various categories or fields.
7. MOVE information from data base files to word processing files.
8. CHANGE file names.
9. MOVE information from one database file to another data base file.
10. USE delete, find, copy, yank, insert and other functions.

CLASS SCHEDULE - FALL SESSION

The first workshop session meets for two hours while the second and third sessions each meet for one and one half hours. A common base of Apple IIGS background is established during the first session so that all participants can participate at the same level for the remainder of the day. Classes A - Language Arts, B - Social Studies, and C - Science meet during each session and participants are equally divided between classes.

CLASS SCHEDULE BY TIME

1. Session 1, 0800 - 1000

    a. CLASS A - LANGUAGE ARTS

        (1) Introduction to the Apple IIGS Computer.
        (2) Introduction to AppleWorks.
        (3) Introduction to Database.
        (4) Using Database in Language Arts.

    b. CLASS B - SOCIAL STUDIES

        (1) Introduction to the Apple IIGS Computer.
        (2) Introduction to AppleWorks.
        (3) Introduction to Database.
        (4) Using Data Base in Social Studies.

    c. CLASS C - SCIENCE

        (1) Introduction to the Apple IIGS Computer.
        (2) Introduction to AppleWorks.
        (3) Introduction to Database.
        (4) Using Database in Science

2. Session 2, 1030 - 1200

    a. CLASS A - LANGUAGE ARTS

        (1) Using Database in Language Arts.

    b. CLASS B - SOCIAL STUDIES

        (1) Using Database in Social Studies.

    c. CLASS C - SCIENCE

        (1) Using Database in Science

3. Session 3, 1300 - 1430

a. CLASS A - LANGUAGE ARTS

(1) Using Database in Language Arts.

b. CLASS B - SOCIAL STUDIES

(1) Using Database in Social Studies.

c. CLASS C - SCIENCE

(1) Using Database in Science

CLASS COMPOSITION

Class size is determined by the number of computers that are available but limited 6 participants. Participants are randomly assigned to classes at the beginning of the first session and remain in that class for the both days.

CLASS OUTLINES

SESSION 1:

1. Class A: Introduction to the Apple IIGS Computer, AppleWorks Database and Using Database In Language Arts. This schedule will be altered based upon the backgrounds of the participants.

   a. Introduction to the Apple IIGS Computer.

      (1) Computer parts.
      (2) Turning on the computer.
      (3) Turning on the monitor.
      (4) Turning on the printer.
      (5) Loading the AppleWorks program.

         (a) Disk drive slot assignments.
         (b) Turning on the machine method.
         (c) OPEN-APPLE-CONTROL-RESET method.

   b. Introduction to AppleWorks.

      (1) Cursor types (OPEN-APPLE-E).
      (2) Reading the screen.
      (3) Main Menu.

(a) Formatting blank data disks.

i. Other Options menu.
ii. Naming the volume.

(b) Selecting disk drive slots.
(c) Setting up files.

c. Introduction to database.

(1) Naming files and file libraries.
(2) Opening files.
(3) File storage (OPEN-APPLE-S).
(4) File printing (OPEN-APPLE-P).

d. Using database in language arts.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database prints.
(7) Curriculum extensions.

2. Class B: Introduction to the Apple IIGS Computer, AppleWorks Database and Using Database In Social Studies. This schedule will be altered based upon the backgrounds of the participants.

a. Introduction to the Apple IIGS Computer.

(1) Computer parts.
(2) Turning on the computer.
(3) Turning on the monitor.
(4) Turning on the printer.
(5) Loading the AppleWorks program.

(a) Disk drive slot assignments.
(b) Turning on the machine method.
(c) OPEN-APPLE-CONTROL-RESET method.

b. Introduction to AppleWorks.

(1) Cursor types (OPEN-APPLE-E).
(2) Reading the screen.
(3) Main Menu.

(a) Formatting blank data disks.

i. Other Options menu.
ii. Naming the volume.

(b) Selecting disk drive slots.
(c) Setting up files.

c. Introduction to database.

(1) Naming files and file libraries.
(2) Opening files.
(3) File storage (OPEN-APPLE-S).
(4) File printing (OPEN-APPLE-P).

d. Using database in social studies.

(1) Collecting information for a data base.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database prints.
(7) Curriculum extensions.

3. Class C: Introduction to the Apple IIGS Computer, AppleWorks Database and Using Database In Science. This schedule will be altered based upon the backgrounds of the participants.

a. Introduction to the Apple IIGS Computer.

(1) Computer parts.
(2) Turning on the computer.
(3) Turning on the monitor.
(4) Turning on the printer.
(5) Loading the AppleWorks program.

(a) Disk drive slot assignments.
(b) Turning on the machine method.
(c) OPEN-APPLE-CONTROL-RESET method.

b. Introduction to AppleWorks.

(1) Cursor types (OPEN-APPLE-E).
(2) Reading the screen.
(3) Main Menu.

(a) Formatting blank data disks.

i. Other Options menu.
ii. Naming the volume.

(b) Selecting disk drive slots.
(c) Setting up files.

c. Introduction to database.

(1) Naming files and file libraries.
(2) Opening files.
(3) File storage (OPEN-APPLE-S).
(4) File printing (OPEN-APPLE-P).

d. Using database in science.

(1) Collecting information for a data base.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database prints.
(7) Curriculum extensions.

SESSION 2:

1. Class A: Introduction to Using Database In Language Arts.

a. Using database in language arts.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database prints.
(7) Curriculum extensions.

b. Review.

2. Class B: Introduction to Using Database In Social Studies.

a. Using database in social studies.

(1) Collecting information for a data base.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database prints.
(7) Curriculum extensions.

b. Review.

3. Class C: Introduction Using Database In Science.

   a. Using database in science.

      (1) Collecting information for a data base.
      (2) Building a database.
      (3) Storing the database.
      (4) Arranging the database (OPEN-APPLE-A).
      (5) Printing the database.
      (6) Interpreting database prints.
      (7) Curriculum extensions.

   b. Review.

SESSION 3:

1. Class A: Introduction to Using Database In Language Arts.

   a. Using database in language arts.

      (1) Collecting information for a database.
      (2) Building a database.
      (3) Storing the database.
      (4) Arranging the database (OPEN-APPLE-A).
      (5) Printing the database.
      (6) Interpreting database prints.
      (7) Curriculum extensions.

   b. Review.

2. Class B: Introduction to Using Database In Social Studies.

   a. Using database in social studies.

      (1) Collecting information for a data base.
      (2) Building a database.
      (3) Storing the database.
      (4) Arranging the database (OPEN-APPLE-A).
      (5) Printing the database.
      (6) Interpreting database prints.
      (7) Curriculum extensions.

   b. Review.

3. Class C: Introduction Using Database In Science.

   a. Using database in science.

      (1) Collecting information for a data base.
      (2) Building a database.
      (3) Storing the database.

one half hours each. Data base principles are reviewed during the first class.

CLASS SCHEDULE BY TIME

1. Session 1, 0800-1000

    a. CLASS A - LANGUAGE ARTS

        (1) Review of the Apple IIGS Computer.
        (2) Review of AppleWorks.
        (3) Review of Database.
        (4) Building Database Files, From Language Arts Data Gathered by Participants and Students.

    b. CLASS B - SOCIAL STUDIES

        (1) Review of the Apple IIGS Computer.
        (2) Review of AppleWorks.
        (3) Review of Data Base.
        (4) Building Database Files, From Social Studies Data Gathered by Participants and Students.

    c. CLASS C - SCIENCE

        (1) Review of the Apple IIGS Computer.
        (2) Review of AppleWorks.
        (3) Review of Data Base.
        (4) Building Data Base Files, From Science Data Gathered by Participants and Students.

CLASS COMPOSITION

Participants are assigned to the same sections (A, B, C) as they were assigned for the first day of the workshop.

CLASS OUTLINES - SPRING SESSION

SESSION 1:

1. Class A: Review of the Apple IIGS Computer, AppleWorks Database and Using Database In Language Arts.

    a. Review of the Apple IIGS Computer.

        (1) Computer parts.
        (2) Turning on the computer.

(3) Turning on the monitor.
(4) Turning on the printer.
(5) Loading the AppleWorks program.

(a) Disk drive slot assignments.
(b) Turning on the machine method.
(c) OPEN-APPLE-CONTROL-RESET method (also called hot a boot).

b. Review of AppleWorks.

(1) Cursor types (OPEN-APPLE-E).
(2) Reading the screen.
(3) Main Menu.

(a) Formatting blank data disks.

i. Other Options menu.
ii. Naming the volume.

(b) Selecting disk drive slots.
(c) Setting up files.

c. Review of database.

(1) Naming files and file libraries.
(2) Opening files.
(3) File storage (OPEN-APPLE-S).
(4) File printing (OPEN-APPLE-P).

d. Using database in language arts.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database print outs.

2. Class B: Review of the Apple IIGS Computer, AppleWorks Database and Using Database In Social Studies.

a. Review of the Apple IIGS Computer.

(1) Computer parts.
(2) Turning on the computer.
(3) Turning on the monitor.
(4) Turning on the printer.
(5) Loading the AppleWorks program.

(a) Disk drive slot assignments.
(b) Turning on the machine method.
(c) OPEN-APPLE-CONTROL-RESET (hot boot) method.

b. Review of AppleWorks.

(1) Cursor types (OPEN-APPLE-E).
(2) Reading the screen.
(3) Main Menu.

(a) Formatting blank data disks.

i. Other Options menu.
ii. Naming the volume.

(b) Selecting disk drive slots.
(c) Setting up files.

c. Review of database.

(1) Naming files and file libraries.
(2) Opening files.
(3) File storage (OPEN-APPLE-S).
(4) File printing (OPEN-APPLE-P).

d. Using database in social studies.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database print outs.

3. Class C: Review of the Apple IIGS Computer, AppleWorks Database and Using Database In Science.

a. Review of the Apple IIGS Computer.

(1) Computer parts.
(2) Turning on the computer.
(3) Turning on the monitor.
(4) Turning on the printer.
(5) Loading the AppleWorks program.

(a) Disk drive slot assignments.
(b) Turning on the machine method.
(c) OPEN-APPLE-CONTROL-RESET (hot boot) method.

b. Review of AppleWorks.

(1) Cursor types (OPEN-APPLE-E).
(2) Reading the screen.
(3) Main Menu.

(a) Formatting blank data disks.

i. Other Options menu.
ii. Naming the volume.

(b) Selecting disk drive slots.
(c) Setting up files.

c. Review of database.

(1) Naming files and file libraries.
(2) Opening files.
(3) File storage (OPEN-APPLE-S).
(4) File printing (OPEN-APPLE-P).

d. Using database in science.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database print outs.

SESSION 2:

1. Class A: Using Database In Language Arts.

a. Using language arts data in databases.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database print outs.

b. Review.

2. Class B: Using Database In Social Studies.

a. Using social studies data in databases.

(1) Collecting information for a database.
(2) Building a database.

(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database print outs.

b. Review.

3. Class C: Using Database In Science.

a. Using science data in databases.

(1) Collecting information for a database.
(2) Building a database.
(3) Storing the database.
(4) Arranging the database (OPEN-APPLE-A).
(5) Printing the database.
(6) Interpreting database print outs.

DIRECTIONS TO PARTICIPANTS FOR CONDUCTING DATA GATHERING ACTIVITIES WITH THEIR STUDENTS

In day two of the workshop, participants use data they and their students have gathered as the basis for building additional databases beyond those build during the first workshop day. It is essential that these between workshop days activities be completed by participants prior to attending the second workshop day. Additional data will not be provided beyond that gathered by the Participants and their students. Descriptions of several classroom activities are included at the end of this booklet.

WHAT PARTICIPANTS SHOULD DO:

1. Read the contents of this booklet!

2. Have your students conduct all of the activities included at the end of this booklet up to and including the data gathering portion of each activity! Three activities are included; one language arts activity, one social studies activity, and one science activity

3. Bring the data gathered by your students to the second day of the workshop! Since students tend to become very excited about learning when allowed to conduct hands-on activities like the ones included here, you may want to have your students finish the activities. If this the case, a different activity in the same subject area may be substituted for the one or ones described at the end of this section. If you need help finding other activities, contact one of the individuals listed below.

4. Use the activities across grade levels! Each activity is usable

across several grade levels. You should adjust the level of sophistication of the activity to fit the abilities of your students. Second grade students, for example, probably would not be expected to compute the percentages in the toothpick activity.

5. Contact one of us if you have questions regarding the data gathering process; Sarah Yoshida, Seoul American Elementary School, Gary Davidson, AUTOVON 635-2365, or Richard Schlenker, AUTOVON 635-2365.

APPENDIX A
SCIENCE ACTIVITY

INTEGRATING COMPUTERS INTO THE SCIENCE PROGRAM USING TOOTHPICKS

INTRODUCTION

In this activity, students gather data from packages of colored toothpicks (it is possible to use plain toothpicks). While collecting data, they work in research teams and following a data collection period, data is shared between all research teams. Subsequent to the data collection phase of the investigation, participants build AppleWorks data base files using Apple IIe or IIGS computers, print, save and electronically manipulate the files, examine the computer printouts and attempt to draw conclusions based upon examination of the data. The level of sophistication with which the activity is approached and teacher expectations of student outcomes should become higher and more complex as the grade level increases. Grade 3 students, for example, might be expected to gather data regarding numbers of each color of toothpicks and the total number of toothpicks in each package followed by building and entering data into a data base file. Grade 4 and beyond research teams might calculate percentages of various colors in a package, the average number of all of the different colors and so on.

If colored toothpicks are not readily available in local stores, plain toothpicks may be used as described in the presentation section.

Teachers who desire to use this activity should know how to construct, save, arrange and print AppleWorks data base files.

PRESENTATION

One thing to note is whether or not toothpicks are packaged by weight. You should expect a variation in the number of toothpicks in each color category and the total number of toothpicks in each small package assuming that each student has the same kind of package. The mass of each package, however, should be the same from one package to another. Toothpicks are produced in yellow, green, pink, blue and perhaps other colors. If it is necessary to use plain toothpicks, the toothpicks may be marked with colored marking pencils. Remember, when marking plain toothpicks, that the number of toothpicks should vary between color categories.

Grade Level. Grades 1 through 9.

Science Skills.
1. Categorizing.
2. Classifying.
3. Data Collection.
4. Data Manipulation.
5. Observing.
6. Drawing Conclusions.

Math Skills.
1. Addition.
2. Averaging.
3. Computing Percentage.
4. Less Than.
5. Greater

Vocabulary.
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Computer Skills.

1. Program Loading.
2. Disk Formatting.
3. Data Base File Construction.
4. File Storage.
5. Data Entry.
6. File Manipulation.
7. File Printing.

1. Variable.
2. Data.
3. Data Base.
4. Format.
5. Load or Boot.
6. File.
7. Store.
8. Arrange.

Partial List Of Variables.

1. Color.
2. Number of toothpicks in each package.
3. Mass of each toothpick.

Materials.

1. 1 package of colored toothpicks for each pair of students (if colored toothpicks cannot be procured locally, purchase plain toothpicks and mark them with colored bands using colored marking pens).
2. At least 1 Apple IIe or GS computer with printer for each class.
3. 1 copy of the AppleWorks program for each computer (versions 1.2, 1.3, 2.0, 2.1 and 3.0 may be used; V2.0, V2.1 and V3.0 normally are used only with the IIGS).
4. 1 blank data disk for each class.
5. 1 pencil for each student.
6. 2 sheets of paper for each student.
7. 1 scale calculated in grams (a triple arm balance may be used and normally can be borrowed from the high school). This item may be optional in the primary grades.

Procedures.

1. Establishing Research Teams. Divide the class into pairs of students.
2. Materials Handout. Give each research team:
   a. 1 Pencil.
   b. 2 pieces of paper.
   c. 1 package of toothpicks.
3. Inquiry Period. Allow the research teams approximately 5 minutes during which they are encouraged to learn all they can about the toothpicks using their own skills and the implements they have.
4. Brainstorming. Conduct a brainstorming session during which the class identifies the variables to be investigated. They should be led to identify color and number. Further, number for each color and total number should be identified.
5. Chalkboard. Write the variables on a chalkboard or a flipchart.

COLOR	NUMBER
YELLOW	
GREEN	
PINK	
BLUE	
OTHERS	
TOTAL	

Figure 1. An Example Data Gathering Table.

6. Construction of a Data Table. Conduct a brief class period where the construction of data gathering table are discussed.
7. Construction Period. Allow a period during which each research team constructs a data gathering table (see Figure 1).
8. Data Gathering Period. Allow a period where students gather data about the variables.
9. Computing Average. For older students, provide the formula for computing the average number of each color which should be in each container:

$$\frac{\text{TOTAL NUMBER OF TOOTHPICKS IN THE PACKAGE}}{\text{TOTAL NUMBER OF COLORS}}$$

10. Computing Percent. For older students, provide the formula for computing the percent of each color that is found in each container.

$$\frac{\text{COLOR 1}}{\text{TOTAL NUMBER OF TOOTHPICKS IN A BOX}} \times 100$$

11. Computation Period. Allow where research teams do the computations.

SAMPLE.NO	PINK	GREEN	BLUE	YELLOW	TOTAL.NO	TL.MASS(gm)
1	43	34	41	34	162	38
2	44	37	38	34	157	38
3						38
4						38
5						38
6						38
7						38
8						38
9						38
10						38
11						38
12						38

Figure 2. An Example Data Base File.

12. Data Sharing. Allow a period during which every student is provided the data gathered by every research team (you may want to provide students copies of the data gathering table).
13. Data Base File Construction. Have each student constructs data base file (see Figure 2). The students' last names could be used as file names. A sample is the data gathered by a single research team. There is a record (horizontal line) in the file for each team.
14. File Saving. Save the data base file by pressing the OPEN-APPLE and "S" keys at the same time.
15. Data Entry. Have each student enter all the data into his or her data base file.
16. File Saving. Save the file.
17. File Printing. Print the file by pressing the OPEN-APPLE and "P" keys at the same time and then following the directions shown on the monitor screen.
18. File Manipulation. Manipulate the file, arranging it successively on each category. This is accomplished by pressing the OPEN-APPLE and "A" keys at the same time. The file should be printed each time a new arrangement is made.
19. Data Examination. Allow a period where students examine the computer printouts (in research teams) looking for data trends.
20. Class Discussion. Conduct a class discussion where the findings of the activity are examined.

Curriculum Extension.

1. Report Writing. Write a report about the project, using the word processing function of the AppleWorks program.
2. Story Writing. Write a story about the project.
3. Letter Writing. Write a letter to a friend describing the project.
4. Business Letters. Write a business letter to the company asking why its not possible to include the same number of each color of toothpicks in each container.
5. Statistical Computations. Have advanced students compute the median, mode and standard deviation. This will require assigning a number value like 1, 2, 3, 4, 5 for each color.
6. Making Sculptures. Use toothpicks and glue to create a design or a sculpture. See if you can use all of the toothpicks in a box (some students may also consider color patterns in their designs or sculptures).

SUMMARY

Students who conduct this activity use research team processes, data pooling techniques and computers as they attempt to make sense out of random data. The activity is "hands-on" and allows use of the collective experiences of all participants by each participant.

APPENDIX B

LANGUAGE ARTS ACTIVITY

LANGUAGE ARTS DATA COLLECTION AND DATA BASE ACTIVITY

Sarah J. Yoshida

INTRODUCTION

The language arts activity described below was designed as a multi-grade level activity where students work in pairs collecting data. Once collected, the data are pooled, computer data base files are built the data is inserted in the file and the file manipulated as students search for commonalities. The activity may also be used as a classification activity and in mathematics, an activity used when students study ven diagrams which support the study of intersecting sets.

PRESENTATION

Grade Level: 1 Through High School.

Time Requirement: Approximately one class period to gather the data. Additional time is required for students to build and manipulate their data and examine their findings.

Materials:
1. Several pieces of notebook paper for each student.
2. 1 pencil for each student.
3. At least one Apple computer for each class.
4. 1 Copy of the AppleWorks program.
5. 1 data disk for each class.

Procedures:
1. Teams. Divide the class into teams of two members each.
2. Numbering. Give each team a number. The number will be used when students build their data base files.
3. Team Data Collection.
   a. Have the students construct a data table which includes the following categories:
      (1) Name.
      (2) Sex.
      (3) Date of Birth.
      (4) Favorite academic subject (math, science, reading or social studies).
      (5) Favorite fine arts subject (music, art, culture).
      (6) Favorite overall subject.
      (7) Hobbies.
      (8) Clubs) cub scouts, girl scouts etc).
      (9) Career goal.
      (10) College (yes or no).
      (11) Others
   b. Have each team member copy the data on his or her partner.
4. Class Data Collection. Have each person collect the data from all other teams.
5. Data Base Files.
   a. Format the data disk.

b. If students do not already know how to construct data base files, describe the procedure. For younger students, it may be necessary for the teacher to build the data base file. The data base file should include one additional field beyond those used for collecting the data so the research team numbers may be entered.
c. Have each student enter all of the data collected from his or her own team and all of the other teams in the class.
d. Save the data base file.
e. Arrange the file on the first category.
f. Print the file after the arrangement has been completed.
g. Arrange the file on each of the other categories, printing it after each rearrangement.

6. Examination Period. Allow a class period during which students working in research teams examine the computer printouts.
7. Class Discussion. Conduct a class discussion during which the findings are discussed. How can the findings be used?

Curriculum Extensions:

1. Language Arts. Have each student select two students' names and write a riddle for each name using the information about the students from the data base print.

2. Mathematics.
   a. Graph the boys' favorite subjects.
   b. Graph the girls' favorite subjects.
   c. Compare the results of the graphing exercise. Did more boys than girls select math and science?

3. Social Studies. Categorize the career goals into service and care providers, professional, semi-skilled etc. Is there a relationship between career goals and plans to attend or not attend college?

APPENDIX C

SCIENCE ACTIVITY

Data Base Activity - Social Studies

Concept: The activities that I have chosen were found in the November/December issue of Teaching and Computers. These are activities in the area of Social Studies based on creating a data base with your students. If these activities aren't appropriate for your lessons over the next several months, then use the activities as a model to collect data from your students in an appropriate social studies topic area that you will be teaching. It is important in conducting the follow-up to the fall data base workshop that you come prepared with student data from a class activity.

Preparation for the workshop: Select activity A, B, or use these as models to collect student data. If you select activity A, Journey to the Third World, you need to work through step four prior to the workshop. If you choose activity B, Career Quest, you need to work through the activity of students filling out the career worksheet.

Activity A. Journey to the Third World

How do you teach students in the United States about the realities of the Third World? Through computer-assisted role play, let them take a walk in the shoes of an "age-mate" from Africa, Asia, Latin America, or the Middle East!

This project invites students to have a more intense understanding of the Third World by selecting and researching a country and then writing a personal essay from the point of view of a child in that country. Using a data base, spreadsheet, and word processor, students manipulate, analyze, and rework the information creatively into a realistic fiction. In effect, they become personally involved and are encouraged to draw conclusions from the data researched.

In addition, this unit provides an opportunity for team teaching. Language arts, social studies, and library media staff can work together in a multimedia format to target all learning styles.

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Materials Needed: For this project to be most effective, students should have a variety of research resources available to them, including atlases, books, encyclopedias, current newspaper and magazine articles, films, and videotapes. Students will also need access to an integrated tool package such as *AppleWorks* or *Microsoft Works*, plus one "journal" data disk each (see Preparation, below). If available, students could also use a CD-ROM encyclopedia like the *CD-ROM Academic America Encyclopedia* and/or an online data base service such as CompuServe's *Academic American Electronic Encyclopedia* or Dialog's *Classmate Service*, *National Newspaper Index*, and *Magazine Index*.

Preparation: You may wish to set up a Third World Data Base modeled after the chart on page 39 and enter the data listed there for your students to use. (The other alternative is to have students enter the data themselves.) Next, use a word processor to type in and save on a blank, formatted disk the journal outline shown on page 28; make a copy of this disk for each student. Set up a world map or globe to use for your discus-

JOURNAL OUTLINE

Directions for students: After you choose a Third World country to research, use your thoughts and research to fill in the following outline.

ABOUT MY COUNTRY
1. Name of country
2. Continent and part it occupies
3. Actual square miles
4. Population
5. Rate of population growth
6. GNP per capita
7. Life expectancy at birth
8. Infant mortality rate per 000
9. Adult literacy rate
10. Major resources/industries
11. Chief problems
12. Other problems
13. Possible solutions to problems

ABOUT MY FAMILY
1. Describe a family in [illegible] the following members according to age, gender, education and responsibilities. Choose an authentic name for each member based on your readings or the map of your country.

Father	Mother	
Child 1	Child 2	Child 3
Child 4	Child 5	Child 6

2. What our housing is like
3. What our diet is like
4. What our standard of living is like

ABOUT ME
1. My name, age, gender
2. My responsibilities in the family
3. How my role is different from my siblings
4. My schooling or training, now and in the future
5. What my future opportunities will probably be like
6. What I could do to improve my standard of living
7. What future I would like to see for my country

sion of the Third World in Step One.

Step One:

Introducing the Third World

Begin by asking students what they think of when they hear the term "Third World." Some students may be familiar with the phrase from news reports; others may be aware of Third World cultures and languages. Explain to students that the phrase "Third World" was created to mean those countries that were not aligned either with the United States and Europe ("The West" or "The Free World") or with the Soviet Union and China ("The East"). The term has since come to mean *developing nations*, many of which have gained their independence within the last half-century. Most of these nations are located in Latin America, Africa, Asia, and the Middle East. Although these nations have many circumstances in common, they are extremely diverse in history, culture, language, and resources.

Because these nations are in the early stages of building their own economies and governments, they often struggle with such problems as poverty, famine, political unrest, and overpopulation. The leaders of Third World nations face great challenges in improving the health, education, and living standards of their people, while protecting their nations' resources and security. Some citizens from Third World countries emigrate to the United States and other wealthy nations to seek a better life.

Use a map or globe to help students locate particular Third World nations. If any of your students are from families that have recently emigrated from a Third World nation, you might ask them to point out that nation on the map and talk a bit about what life was like there. You might also show films or videotapes to help your class get a visual impression of life in various parts of the Third World.

Step Two:

Starting a Journal

Journal writing is a necessary and daily component of this project. Hand out the journal disks, and explain to students that they will use the word processor to record all facts, interesting information, and personal thoughts on anything that impresses them about their area of study over the course of this project. (If you have a limited number of computers, you may wish to have students keep daily journals by hand in a notebook, then transfer notes to disk once a week.) At the end of this project, students will use their journal information to write their final essay.

On the basis of their introduction to the Third World, students should now create a list of questions and thoughts in their journal that they would like to address through further research. For example, one student might write, "Do children in the Third World go to school everyday?" Another child might note, "I want to study a nation located on an island." These questions and comments, along with the journal outline, will help students to focus their research.

As the project progresses, review and discuss students' journal disks or printouts periodically. If you are team-teaching, the English teacher should review the use of description, imagery, and different writing styles, while the social studies teacher can review instructions on how to locate facts, research information, and take notes.

Step Three:

Choosing a Country

Students will now search and sort the data in your Third World Data Base to select countries on which they will focus their research.

To start, students can search, sort, and compare information on countries' population, population growth rate, and Gross National Product (GNP) per capita. Some students may wish to choose countries or regions to which they have ancestral ties; others may select countries based on the issues they are interested in (such as the environment, food production, or culture). Encourage students to gain perspective on their target countries by comparing their statistics with those of the United States.

Once students have chosen a country, they can record these initial statistics in their journals and proceed to research more information using a variety of reference sources.

Step Four:

Researching a Country

Books, encyclopedias, almanacs, magazines, and newspapers are excellent places for students to begin their research, as are audio-visual resources. Guide students in selecting research resources to match particular needs. For example:

-Statistical data: Almanac, *World Bank's Development Data Book*;

-Geographic/topographic data: Maps, atlases, *National Geographic* magazine;

•**History:** Books, encyclopedias;

•**Language and culture:** Books (including fiction), encyclopedias, video, audio;

•**Daily life:** Books, encyclopedias, magazines;

•**Problems and prospects:** Magazines, newspapers, world organization reports.

Your students will also benefit from using a CD-ROM encyclopedia or an online data base service, if available. A CD-ROM encyclopedia is an outstanding resource of fairly current information, and provides the students with the opportunity of developing logical search strategies without the restrictive costs of online searches. Online data bases provide even more current information on a topic, and go even further in honing search strategy. To make the most effective use of either kind of resource, students will need to plan in advance the kinds of information they are seeking, plus five or more key words (including country name, capital, major products, and important issues) with which to begin their search. Use print resources to help students practice key-word searches and cross-referencing.

Step Five:

Sensing a Place

In this step, students will begin developing, in their journals, "five senses" lists of images and adjectives to describe their chosen country, based on their research. Words on the list might refer to sights (such as the color of the earth or the shape of village homes); sounds (the pounding surf or the lowing of cattle); smells (burning wood or the perfume of wild orchids); tastes (camel's milk or fresh-baked bread); and textures (sand, a woven blanket). Students should also begin imagining and describing the feelings of a child their own age in that country. Encourage students to strive for vivid but accurate language for their lists.

Step Six:

Working the Statistics

Demonstrate how a spreadsheet works and then have students create one or more of their own to help analyze statistics for their selected country. For example, some students might want to set up a spreadsheet to calculate population figures for their country at the turn of the 21st century, based on current population and growth rates. Other students may want to examine population per square mile, and then compare it with how land ownership is actually distributed. Still others may be interested in comparing their countrys' per capita GNP with those of other neighboring countries to discover patterns and imagine possible development strategies. These spreadsheet figures and the conclusions they inspire should be added to students' journals.

Step Seven:

Writing the Final Essay

Incorporating all of their researched material, personal comments, and observations, students will use a word processor to write a first-person account of life with a fictional family in a Third World country.

First, students should organize their statistical information, sense lists, and other notes into the journal outline format, using your word processor's copy or move function. Have students print out these outlines to review with you for data gaps or misinterpreted information.

Next, students should incorporate the information in each outline section into several complete sentences, written from the viewpoint of a child their age in that country. Remind students to use the first person, and to explain statistical information rather than just reporting it.

Students can build these sentences into a first draft of their essays, which they can then print out and review for spelling, grammar, punctuation, clarity, and accuracy. After making these corrections using the word processor, students will be able to print out a final draft of their essay.

You might encourage students to add a graphic dimension to their essays with maps, charts, or drawings.

Set aside time for students to present their essays to the class. Then hold a discussion about the similarities and differences among Third World countries, and what actions American students might take to assist solutions to Third World challenges.

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Note: A step-by-step guide to implementing this unit in the classroom with worksheets, an AppleWorks *data disk including the spreadsheet templates and the data base of countries of the world, and a training videotape which can visually illustrate the components of the unit to teachers is available through MenCap Productions, 13 Grace Dr., Medfield, MA 02052. The price of the package is $59.95.*

SOCIAL STUDIES

CAREER QUEST

Curriculum Objective: *Learning about different careers*
Computer Skill: *Creating and using a data base*

"What do you want to be when you grow up?" While it's too soon for your students to have a definitive answer to this often-asked question, it's not too early to start familiarizing them with the occupational opportunities that are available.

With this data base lesson, students will track down and use information concerning all types of job possibilities, while brushing up on their computer skills at the same time.

Materials Needed: For the core of this lesson plan, you will need a data base management program and a printer. Other activities require a word processor, desktop publishing program, and/or graphics program. Have on hand resource materials about careers and a list of people who might be willing to talk about their work.

Preparation: Use your data base program to set up a file with fields based on the following model (adapted to meet your data base program's specific requirements). Print out a blank record and photocopy it for students to use as a worksheet.

OCCUPATIONS DATA FILE
NAME OF JOB:
JOB DESCRIPTION:
SCHOOLING NEEDED:
SPECIAL SKILLS NEEDED:
AVERAGE YEARLY INCOME:
WORK ENVIRONMENT (OFFICE, FACTORY, OUTDOORS):
WORK SCHEDULE (HOURS, SEASONS):
DRESS/APPEARANCE:
HELPFUL PERSONALITY CHARACTERISTICS:
POSSIBLE OCCUPATIONAL HAZARDS:

Discussion: Tell your students that they will be assembling a data base of information about many different kinds of jobs. They will be gathering their information from books and magazines as well as from people who actually do those jobs.

As a class, brainstorm a list of occupations, enough so that every student can research a different one. Hand out the blank data records, and review them with students to make sure they understand what information is needed in each category.

Activity: Have each student choose one career to research. Then, if possible, launch the research phase of this lesson by hosting a Career Day at which parents, friends, and members of the community come in and talk about their jobs. Alternatively, help students to set up interviews with career representative contacts outside of class. Have students flesh out their interviews with library research.

Activity: Once students have gathered enough information to complete their pencil-and-paper data records, hold a class discussion about the kinds of facts they'll be entering into the data base. Help students develop concise, consistent ways to record information about schooling requirements, occupational hazards, and so on. You might also take time now to review your data base program to make sure students can enter and manipulate data comfortably. Then have each student enter his or her data and print out the record for you or another student to check.

Activity: Assign each student to think of a "wish list" of three things he or she might look for in a job someday—such as the ability to work outdoors, a salary of more than $100,000 per year, or no more than high school education needed. Then have each student search the data base for as many jobs as he or she

can find that match one or more of those wishes.

Activity: Have students randomly select occupations from the data base (perhaps jobs beginning with the same letter as their first or last names) and write up imaginary "Want Ads" for those positions. Students might use a desktop publishing or graphics program to "typeset" and illustrate their ads.

Activity: Have each child choose an occupation that he or she is most interested in. Then separate students into groups by related professions—for instance, all the students who chose a career in a medical profession should be grouped together, while students interested in teaching professions are put in another group. Have each group work together, using your word processor, to write a dramatic skit based on its members' professions, a la *Hill Street Blues* or *St. Elsewhere*. Have each group perform its skit for the class.

Activity: Cap off the lesson by playing a fun game called Shopping Spree. Use your word processor to create a "Shopping List" form with the following information:

NAME:
OCCUPATION:
YEARLY INCOME:
PURCHASES (leave up to 10 blank lines):
TOTAL: $

Once again, have each student randomly select an occupation from your data base; students should then make up a silly name of a person who has that occupation (such as Roto Rooter for Plumber, or Ima Goodegg for Chicken Farmer). Tell students that the Acme SuperDuper Shopping Mall is sponsoring a contest in which the first person to spend his or her entire yearly income on job-related goods at the mall (which sells everything under the sun) will win one million dollars. Student must use the data base and their imagination to come up with an appropriate shopping list (see the example in the box below). Have students total up their shopping lists and post them, with illustrations, on a classroom bulletin board.

Jill L. Tucci, Edinboro, Pa.

CAREER QUEST
SHOPPING SPREE

SAMPLE SHOPPING LIST

NAME: Rita Ward
OCCUPATION: Writer
YEARLY INCOME: $28,000

PURCHASES:
1 house complete [illegible] $1,191
1 home computer $2,500
1 laptop computer $2,000
30 [illegible] $40 each
120 [illegible] $18 each
2 pairs of shoes (for tracking down stories) $70.50 each
12 round-trip plane tickets to Washington, D.C. (for monthly interviews with the President) $450 each
1 year's worth of [illegible] online data base time $1,000
Printing service for [illegible] weekly bulletins $3,000

TOTAL: $[illegible]

Appendix 16

END

U.S. Dept. of Education

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March 21,1991